CLAIMS

WHAT IS CLAIMED:

1. A method of impedance matching voice and data signals received by an apparatus, comprising:

receiving an input signal having at least one of a voice component, data component, and DC component;

filtering at least a portion of the data component and DC component of the input signal to provide a filtered signal;

adjusting an input impedance of the apparatus to a first preselected value for the voice band in response to the filtered signal;

adjusting the input impedance of the apparatus from the first preselected value to a second preselected value; and

adjusting at least one of a magnitude and phase of the filtered signal to adjust the input impedance to a third value.

2. The method of claim 1, wherein filtering at least the portion of the DC component includes filtering the DC component using a DC cancellation loop.

3. The method of claim 1, wherein filtering at least a portion of the data component includes filtering at least portion of the data component using a single-pole low pass filter.

4. The method of claim 1, further including adjusting the input impedance of the apparatus to a fourth preselected value for the data band.

5. The method of claim 4, wherein the fourth preselected value is in a range of 100 to 135 ohms.

6. The method of claim 4, wherein adjusting the input impedance includes adjusting the frequency characteristic of the filtered signal by a selected interval.

7. The method of claim 4, wherein the first preselected value is in a range of 600 to 1200 ohms.

8. An apparatus for impedance matching, comprising:

circuitry adapted to receive an input signal having at least one of a voice, data, and DC component;

a first filter adapted to filter at least a portion of the data component of the input signal to provide a filtered data signal;

a second filter adapted to filter at least a portion of the DC component of the filtered data signal to provide a filtered signal;

a first impedance block adapted to adjust an input impedance of the apparatus to a first preselected value for the voice band in response to the filtered signal;

a second impedance block adapted to adjust the input impedance of the apparatus from the first preselected value to a second preselected value; and

a third impedance block adapted to adjust at least one of a magnitude and phase of the filtered signal to adjust the input impedance to a third value.

9. The apparatus of claim 8, wherein the second filter includes a DC cancellation loop capable of removing the portion of the DC component.

10. The apparatus of claim 8, wherein the first filter comprises a single-pole low pass filter.

11. The apparatus of claim 8, further including at least one resister for defining the input impedance of the apparatus to a fourth preselected value for the data band.

12. The apparatus of claim 11, wherein the fourth preselected value is in a range of 100 to 135 ohms.

13. The apparatus of claim 12, wherein the second impedance block and the third impedance block comprise a programmable impedance matching filter.

14. The apparatus of claim 12, wherein the first impedance block adapted to adjust the input impedance includes the first impedance block adapted to adjust the frequency of the filtered signal.

15. An apparatus for impedance matching, comprising:

circuitry adapted to receive an input signal having a voice, data, and DC component;

a first filter adapted to filter at least a portion of the data component of the input signal to provide a filtered data signal;

a second filter adapted to filter at least a portion of the DC component of the filtered data signal to provide a filtered signal;

a first feedback loop adapted to adjust an input impedance of the apparatus to a first preselected value for the voice band in response to the filtered signal;

a second feedback loop adapted to adjust the input impedance of the first apparatus from the first preselected value to a second preselected value; and

a third feedback loop adapted to adjust at least one of a magnitude and phase of the filtered signal to adjust the input impedance to a third value.

16. The apparatus of claim 15, wherein the third feedback loop comprises:

a filter capable of removing at least a portion of a residual DC component from the filtered signal and providing an output signal; and

a Z-filter block capable of adjusting a frequency response of the output signal.

17. The apparatus of claim 15, further including at least one resister for defining the input impedance of the apparatus to a fourth preselected value for the data band.

18. The apparatus of claim 17, wherein the fourth preselected value is in a range of 100 to 135 ohms.

19. An apparatus supporting transmission of signals carrying voice and data on a subscriber line, comprising:

a subscriber line interface circuit adapted receive an input signal having a voice, data, and DC component;

a first filter adapted to filter at least a portion of the data component of the input signal to provide a filtered data signal;

a second filter adapted to filter at least a portion of the DC component of the filtered data signal to provide a filtered signal; and

wherein the subscriber line interface circuit includes a first loop adapted adjust an input impedance of the apparatus to a first preselected value for the voice band in response to the filtered signal; and

a digital signal processor comprising:

a second feedback loop adapted to adjust the input impedance of the apparatus from the first preselected value to a second preselected value; and

a third feedback loop adapted to adjust at least one of a magnitude and phase of the filtered signal to adjust the input impedance to a third value.

20. The apparatus of claim 19, wherein the subscriber line integrated circuit is a voltage subscriber line interface circuit.

21. The apparatus of claim 19, the third feedback loop comprises:

a filter capable of removing at least a portion of a residual DC component from the filtered signal and providing an output signal; and

a Z-filter block capable of adjusting at least one of a gain and phase of the output signal.

22. The apparatus of claim 21, further including at least one resister for defining the input impedance of the apparatus to a selected value for the data band.

23. The apparatus of claim 22, wherein the selected value is in a range of 100 to 135 ohms.

24. An apparatus, comprising:

means for receiving an input signal having at least one of a voice component, data component, and DC component;

means for filtering at least a portion of the data component and DC component of the input signal to provide a filtered signal;

means for adjusting an input impedance of the apparatus to a first preselected value for the voice band in response to the filtered signal;

means for adjusting the input impedance of the first apparatus from the first preselected value to a second preselected value; and

means for adjusting at least one of a magnitude and phase of the filtered signal to adjust the input impedance to a third value.